Amendments to the Claims

This listing of claims will replace all prior versions, and listing, of claims in the application.

Listing of Claims:

1 (Currently amended). A pattern formation substrate ~~in~~ on which a predetermined pattern is formed by discharging droplets onto a target surface thereof, the pattern formation substrate comprising:

a first surface containing the target surface comprising a first area and a second area forming a pattern comprising a line of width L, the first area being formed such that a droplet thereon exhibits a first contact angle between the droplet and the first area, the second area being formed such that a droplet thereon exhibits a second contact angle between the droplet and the second area, wherein;

~~the pattern is so formed that,~~ when the droplet is landed onto the target surface such that part of the droplet ~~landed~~ is in ~~a~~ the first area ~~in which a contact angle between the droplet and the target surface is a first angle~~, and part of the droplet ~~landed~~ is in ~~a~~ the second area, which is adjacent to the first area, ~~and in which a~~ the second contact angle is smaller than the first contact angle, ~~the~~ and equation (1) is satisfied,

$$D \leq L \times \{1+2(\cos\theta_2-\cos\theta_1)\} \ldots (1)$$

where D is a droplet diameter, θ_1 is a first contact angle, and θ_2 is a second contact angle.

2 (Currently amended). A pattern forming method, comprising the steps of:

providing a pattern forming substrate comprising:

a first surface containing the target surface comprising a first area and a second area forming a pattern comprising a line of width L, the first area being formed such that a droplet thereon exhibits a first contact angle

between the droplet and the first area, the second area being formed such that a droplet thereon exhibits a second contact angle between the droplet and the second area,

wherein;

when the droplet is landed onto the target surface such that part of the droplet is in the first area, and part of the droplet is in the second area, which is adjacent to the first area, the second contact angle is smaller than the first contact angle, and equation (1) is satisfied,

$$D \leq L \times \{1+2(\cos\theta_2-\cos\theta_1)\} \ldots (1)$$

where D is a droplet diameter, θ_1 is a first contact angle, and θ_2 is a second contact angle;

landing droplets on the pattern forming substrate wherein ~~whose~~ one part of a droplet can land ~~is landed~~ on ~~a~~ the first area and ~~whose other~~ another part of the droplet can land ~~is landed~~ on ~~a~~ the second area on said pattern formation substrate ~~as set forth in claim 1~~,

thereby forming a pattern with the droplets.

3 (Currently amended). The pattern forming method as set forth in claim 3~~1~~, wherein the first contact angle is set so that the first area becomes a lyophobic area which is lyophobic against the droplets, and a second contact angle is set so that the second area becomes a lyophilic area which is lyophilic to the droplets.

4 (Original). A pattern forming method in which a predetermined pattern is formed by discharging droplets onto a target surface, comprising the steps of:

forming a first area and a second area adjacent to the first area before the droplet is discharged, the first area being lyophobic against droplets, and the second area being lyophilic to droplets and being to be the pattern to be formed; and

discharging the droplets onto the target surface so that a distance x satisfy the equation 2, the distance x being a distance from a border between the first and the second areas, to a center of a landed droplet,

$$X \leq \sqrt[3]{\frac{4}{2-3\cos\theta_1+\cos^3\theta_1}} \cdot \frac{D}{2} \quad \cdots\cdot(2)$$

where X is a distance between border of water attracting/water repelling patterns and a center of a landing droplet, D is a droplet diameter, and θ_1 is a contact angle of an ink in a water repelling area.

5 (Original). A pattern forming method in which a predetermined pattern is formed by discharging droplets onto a target surface, comprising the steps of:

forming a first area and a second area adjacent to the first area before the droplet is discharged, the first area being lyophobic against droplets, and the second area being lyophilic to droplets and being to be the pattern to be formed; and

discharging the droplets onto the target surface so that a discharging pitch P satisfy the equation (3), the discharging pitch P being a pitch when the droplet is landed,

$$\frac{0.04D^3}{L} \leq P \leq \frac{0.4D^3}{L} \quad \cdots\cdot(3)$$

where P is a discharging pitch (μm), D is a droplet diameter (μm), L is a water attracting line width (μm).

6 (Original). A pattern forming method as set forth in any one of claims 2 through 5, wherein uninterrupted patterns are formed by unifying droplets discretely landed onto the target surface.

7 (Original). A pattern forming method as set forth in any one of claims 2 through 5, wherein an inkjet head is used for discharging the droplets.

8 (Original). A pattern forming method as set forth in any one of claims 2 through 5, wherein the first area and the second area are so formed as to be substantially flat.

9 (Original). A pattern forming method as set forth in any one of claims 2 through 5, wherein the droplets contain electrically conductive particles.

10 (Original). A pattern forming method as set forth in any one of claims 2 through 5, wherein the second area is a line-shaped pattern.